

Partial Translation of JP 2003-119869 A

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[0012]

[Embodiment of the Invention]

The invention as recited in claim 1 includes rotating means having a plurality of water vanes and rotated by a flow of water from a first water supply path, a second water supply path that supplies a flow of water in a direction that prevents the rotation of said rotating means, flow rate control means for controlling the ratio of the flow of water to said first water supply path and said second water supply path, and a spray hole that is provided in a position parallel to the axis of rotation of said rotating means. Therefore, if the flow rate control means supplies water only through the first water supply path, then the flow of water acts on the water vanes to rotate the rotating means, and the plurality of water vanes sequentially block the spray hole provided in the position parallel to the axis of rotation of the rotating means. A jet flow is deflected by a chopper function caused by facets of the water vanes, so that the flow becomes a jet flow of inverted cone shape that is centered on a shaft center of the spray hole and provides decentralized gentle physical sensations. In other words, in a first process until one of the facets of each of the water vanes enters the center of the spray hole, the discharged flow of water is deflected in a direction opposite to a direction in which the water vanes move; in a

second process in which the center of the spray hole is approximately coincident with the center of the water vanes, the spray hole becomes substantially blocked, so that the discharge of water is restricted; and in a third process in which the other facet of each of the water vanes moves far from the center of the spray hole, the discharged flow of water is deflected in the same direction as the moving direction of the water vanes. With those processes repeated continuously by the plurality of water vanes, the jet flow becomes the jet flow of inverted cone shape, which is centered on the shaft center of the spray hole, thus relieving concentrated physical sensations and enhancing the comfort during washing.

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[Effects of the Invention]

As has been described above, according to the invention as recited in claims 1 to 11 of the present invention, the spray hole is provided in the position parallel to the axis of rotation of the rotating means having the plurality of water vanes, and the flow rate control means for controlling the amount of water supplied to the first and second water supply paths is provided to control the rotation of the rotating means. Thus, the chopper function caused by the rotation of the rotating means provides a decentralized jet flow as well as a concentrated jet flow when the rotating means is stopped,

thereby making it possible to select a washing jet flow according to one's preference. Moreover, the chopper function causes a decrease in amount of water per unit time and an intermittent increase in internal pressure of the nozzle, thereby increasing a spray speed and thus providing prescribed washing sensations with a small amount of water. This enables adoption of instantaneous heating means, preventing running out of warm water even if it is continuously used and requiring no hot water tank. This leads to downsizing of the entire apparatus and prevents a loss of electrical energy used for keeping the hot water warm, thus achieving energy conservation.

[Brief Description of the Drawings]

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[FIG. 4] FIG. 4 is an enlarged cross sectional view of a main part of the spray hole and a water vane.

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[FIG. 7] FIG. 7 is a structural diagram of water supply means showing another example of the present invention.

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[FIG. 9] FIG. 9 is an enlarged cross sectional view of

the tip of the washing nozzle.

[FIG.10] FIG. 10 is a structural diagram of a conventional sanitary washing apparatus.

[FIG.11] FIG. 11 is a cross sectional view of the washing nozzle.

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[FIG. 4]

34: water vane

35: rotating means

36: spray hole

...omitted...

[FIG. 7]

37: motor

38: gear

39: cylinder

40: piston

41: link mechanism

42: check valve

...omitted...

[FIG. 9]

18: posterior washing nozzle

29: moving nozzle body

31: first water supply path

33: second water supply path

34: water vane

35: rotating means

36: spray hole

43: washed part

[FIG. 10]

1: toilet bowl

2: sanitary washing toilet seat

3: toilet seat

4: toilet lid

5: main body

7: washing nozzle

[FIG. 11]

7: washing nozzle

8: washing water supply path

9: spray port

10: adhesion wall

11: adhesion wall

12: feedback water path

13: feedback water path

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